

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

A method of obtaining an oligonucleotide capable of carrying out a predetermined biological function, comprising:

- 5 (a) generating a heterogeneous pool of oligonucleotides,  $x + y + z$  nucleotides in length, said oligonucleotides comprising a 5' randomized sequence,  $x$  nucleotides in length, a central preselected sequence,  $y$  nucleotides in length, and a 3' randomized sequence,  $z$  nucleotides in length, said heterogeneous pool having nucleic acid sequences representing a random sampling of the  $4^{x+z}$  possible sequences for oligonucleotides of said length,
- 10 (b) introducing a random sampling of said heterogeneous pool of oligonucleotides into a population of cells that do not exhibit the predetermined biological function,
- (c) thereafter screening said population of cells for a subpopulation of cells exhibiting said predetermined biological function, and
- 15 (d) isolating from said subpopulation of cells an oligonucleotide comprising said preselected sequence and capable of carrying out said predetermined biological function.

2. A method of obtaining an oligonucleotide capable of carrying out a predetermined biological function, comprising:

- 5 (a) generating a heterogeneous pool of oligonucleotides,  $n$  nucleotides in length, from a mixture of nucleotides consisting essentially of  $a\%$  adenine,  $t\%$  thymidine,  $c\%$  cytosine, and  $g\%$  guanine, wherein  $a + t + c + g = 100\%$ , said heterogeneous pool having nucleic acid sequences representing a random sampling of the  $4^n$  possible sequences for oligonucleotides of said length generated from nucleotides of said relative percent concentrations,
- 10 (b) introducing a random sampling of said heterogeneous pool of oligonucleotides into a population of cells that do not exhibit the predetermined biological function,
- (c) thereafter screening said population of cells for a subpopulation of cells exhibiting said predetermined biological function, and
- 15 (d) isolating from said subpopulation of cells an oligonucleotide capable of carrying out said predetermined biological function.